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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Peter Werner et al.	§	
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	§	Group Art Unit:
Serial No.: 10/676,168	§	
	§	Examiner:
Filed: September 30, 2003	§	
	§	
For: REELED MATERIAL SPLICING METHOD AND APPARATUS	§	Atty. Docket:
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	§	03AB059

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May 1, 2006 — Seanelle Dice
Date — Seanelle Dice

Sir:

SUPPLEMENTAL APPEAL BRIEF PURSUANT TO 37 C.F.R. §§ 41.31 AND 41.37 AND REPLY TO NOTICE OF NON-COMPLIANT APPEAL BRIEF MAILED ON APRIL 5, 2006

This Supplemental Appeal Brief is being filed in response to the Notice of Non-Compliant Appeal Brief mailed on April 5, 2006, in furtherance of the Notice of Appeal mailed on December 12, 2005, and received by the Patent Office on December 19, 2005. In the Notice of Non-Compliant Appeal Brief, the Examiner indicated that the previously filed Appeal Brief failed to identify and address claim 21 with a concise explanation of the subject matter, and for each dependent claim argued separately. As an example, the Examiner indicated that dependent claims 46-55 have not been addressed. The present Supplemental Appeal Brief includes a concise explanation of the subject matter of these claims. Accordingly, the Appellants submit that the present Supplemental Appeal Brief is in compliance with 37 C.F.R. § 41.37(c).

1. REAL PARTY IN INTEREST

The real party in interest is Rockwell Automation Technologies, Inc., having its principal place of business in Milwaukee, Wisconsin and the Assignee of the above-referenced application by virtue of the Assignment recorded on September 13, 2004, at Reel 015820, Frame 0151. Accordingly, Rockwell Automation Technologies, Inc., as the Assignee of the above-referenced application, will be directly affected by the Board's decision in the pending appeal.

2. RELATED APPEALS AND INTERFERENCES

Appellants are unaware of any other appeals or interferences related to this Appeal.

3. STATUS OF CLAIMS

Claims 1-13 and 15-55 are currently pending, claim 14 is cancelled, and claims 1-13 and 15-55 are currently under final rejection and, thus, are the subject of this appeal.

4. STATUS OF AMENDMENTS

The Amendment and Response, mailed on June 10, 2005, adding claims 52-55, canceling claim 14, and amending claims 1, 11-13, 15, 20, 21, 31, 36, 44, and 50 has been entered, and the Response mailed on November 14, 2005, has been considered. Accordingly, the present application is not subject to any pending amendments.

5. SUMMARY OF THE CLAIMED SUBJECT MATTER

The present application currently contains five independent claims that are subject to this appeal, claims 1, 15, 21, 31, 36, and 44. To explain the subject matter defined by independent claims 1, 15, 21, 31, 36, and 44, specific embodiments within the scope of these claims are identified in the specification. However, it is important to note that the embodiments subsequently discussed merely explain subject matter falling within the scope of the claims at issue, rather than defining the scope of the claims themselves. Thus, while the following embodiments are exemplary of claims 1, 15, 21, 31, 36, and 44, they are not definitive.

In the newspaper industry, reels of media are unwound into a production system, which applies print to the media and organizes the printed media into bundles. *See Application*, page 1, lines 10-11. As one reel of media unwinds toward its expiration, operators ensure that a replacement reel of media is joined to the expiring reel. *See Application*, page 1, lines 11-13. Unfortunately, existing production systems have poor control of tension in the media during a transition from an expiring reel to a replacement reel. *See Application*, page 1, lines 15-16. For example, existing production systems often use pneumatic tension controls, which can have considerable lag time. *See Application*, page 1, lines 17-18. The transition process from the expiring reel to the replacement reel is particularly sensitive to such tension variations. *See Application*, page 1, lines 20-21. In some cases, poor tension control can result in failed or missed joints. *See Application*, page 1, lines 21-22.

Embodiments within the scope the present claims target drawbacks of conventional production systems by employing a *motorized drive* to *control tension* in a replacement reeled media *during splicing*. *See Application*, page 8, lines 8-11. For instance, one exemplary method within the scope of independent claim 1 includes steps of controlling a motorized drive (e.g., 148 in Fig. 2) to adjust tension (e.g., 208 in Fig. 3) of a replacement reeled media (e.g., 104 in Fig. 2) and controlling the motorized drive to adjust speed (e.g., 204 in Fig. 3) of the replacement reeled media. *See Application*, page 8, lines 3-6 and 8-11; and page 17, lines 4-6 and 17-27. Additionally, the exemplary method may include steps to time the splicing operation to coincide with the end of the expiring reeled media (e.g., 102 in Fig. 2). *See Application*, page 7, lines 12-14. For example, the present exemplary method includes tracking an unwinding parameter of the expiring reeled media (such as the trailing end position 332 in Fig. 6), sensing speed parameters of the expiring and replacement media (such as surface speed), and tracking the position of the leading end of the replacement media (e.g., 306 in Fig. 6). *See Application*, page 7, lines 15-19. The present exemplary method also includes a step employing this information to control the splice (e.g., 52 in Fig. 3) based on the speed parameter, the unwinding parameters, and the leading and end positions. *See Application*, page 7, lines 19-24. In summary, the present

exemplary method splices a replacement reeled media and an expiring reeled media in a tension controlled manner without the time lag associated with pneumatic systems.

In another example, an embodiment within the scope of independent claim 15 facilitates precise control of the tension in a replacement reeled media. This exemplary embodiment includes means for sensing an operational parameter, such as feedback sensors comprised by control/feedback modules 66, 68, 70, 72, and 74, speed sensor 76, and/or feedback sensors 288 for speed 286, position 288, torque 300, and tension 302. *See Application*, page 4, lines 15-18 and 21-22; Fig. 2; page 14, lines 10-22; Fig. 6. Additionally, the present exemplary embodiment includes means for controlling the splicing operation, such as control/feedback modules 64, 66, 68, 70, 72, 74, 260, 262, 264, 266, and/or 268. *See Application*, page 4, lines 15-27; Figs. 2 and 6. This exemplary embodiment also features means for transitioning from speed based control to tension based control of the replacement reeled media, such as the media transition controller 64, transition drive 62, and/or transition drive feedback/control module 74. *See Application*, page 8, lines 3-6 and 8-11; page 17, lines 4-6 and 18-25; and Figs. 2 and 3. By transitioning from speed based control to tension based control during a splicing operation, the present exemplary technique facilitated precise control of the tension in the replacement reeled media.

In another example, an embodiment within the scope of independent claim 21 facilitates precise control of the tension in a replacement reeled media. This exemplary embodiment includes speed sensors (e.g., 76 and 147 in Fig. 2) adapted to sense speed parameters (such as surface speed) of first (e.g., 102 in Fig. 2) and second (e.g., 104 in Fig. 2) reeled media. *See Application*, page 7, lines 14-21. Additionally, the present exemplary embodiment includes an unwinding sensor (e.g., 110 in Fig. 2) adapted to track an unwinding parameter (such as the trailing end position 332 in Fig. 6) of the first reeled media. *See Application*, page 5, lines 8-15. This exemplary embodiment also features a positional sensor (e.g., 110 in Fig. 2) adapted to track a leading end position (e.g., 112 in Fig. 2) of the second reeled media. *See Application*, page 5, lines 15-17. The present embodiment further includes a transition drive controller (e.g., 74 in Fig. 2) adapted to transition a motorized media drive (e.g., 62 in Fig. 2) from speed control (e.g.,

204 in Fig. 3) to tension control (e.g., 208 in Fig. 3) of the second reeled media. *See Application*, page 7, line 25-page 8, line 6; and page 9, lines 8-16. Additionally, the current embodiment includes a media splicing controller (e.g., 52 in Fig. 3) adapted to control splicing between the first and second reeled media based at least partially on the speed parameters, the unwinding parameter, and the leading end position. *See Application*, page 10, line 10-page 11, line 7.

An embodiment of independent claim 31 includes an exemplary program (e.g., 64 in Fig. 6) for controlling a media production system (e.g., 10 in Fig. 1). The exemplary program includes a tangible machine readable medium and machine readable code disposed on machine readable medium. The machine readable code is adapted to control splicing between first (e.g., 102 in Fig. 2) and second (e.g., 104 in Fig. 2) reeled media based at least partially on speed feedback (e.g., 308 and 334 in Fig. 6) from the first and second reeled media, unwinding feedback (e.g., 336 in Fig. 6) from the first reeled media, and positional feedback (e.g., 310 in Fig. 6) of a leading end of the second reeled media. Additionally, the machine readable code is adapted to control speed (e.g., 260 in Fig. 6) of a motor driving (e.g., 148 in Fig. 2) the second reeled media at least prior to splicing and adapted to control torque (e.g., 264 in Fig. 6) of the motor driving the second reeled media at least subsequent to splicing.

An embodiment of independent claim 36 includes an exemplary media production system (e.g., 10 in Fig. 1). The exemplary media production system includes a first reel structure adapted to support an unwinding media (e.g., 102 in Fig. 2) and a second reel structure adapted to support a replacement media (e.g., 104 in Fig. 2). The exemplary media production system may also include a media carrier (e.g., 60 in Fig. 2) disposed adjacent the first reel structure and adapted to transport the unwinding media and a media drive (e.g., 148 in Fig. 2) disposed adjacent the second reel structure. The media drive may be adapted to drive the replacement media and to apply a force opposing rotation of the replacement media for a transition from the unwinding media to the replacement media. The media production system may include a splicing controller (e.g., 64 in Fig. 4) adapted to control splicing between the unwinding media and the replacement media based at least partially on speed feedback (e.g., 334 and 308 in Fig. 6)

for the unwinding media and the replacement media, unwinding feedback for the unwinding media (e.g., 336 in Fig. 6), and positional feedback (e.g., 310 in Fig. 6) of a leading end of the replacement media.

An embodiment of independent claim 44 includes an exemplary method (e.g., 240 in Fig. 5) for reeled media production. The exemplary method includes providing a splicing controller (e.g., 268 in Fig. 6) adapted to control splicing between an unwinding media (e.g., 102 in Fig. 2) and a replacement media (e.g., 104 in Fig. 2) based at least partially on speed feedback (e.g., 308 and 334 in Fig. 6) for the unwinding media and the replacement media, unwinding feedback (e.g., 336 in Fig. 6) for the unwinding media, and positional feedback (e.g., 310 in Fig. 6) of a leading end of the replacement media. The present exemplary method also includes providing a transition drive controller (e.g., 74 in Fig. 2) adapted to control a media transition drive (e.g., 148 in Fig. 2) to accelerate the replacement media to a surface speed (e.g., 204 in Fig. 3) of the unwinding media and to generate a torque (e.g., 208 in Fig. 3) that opposes unwinding of the replacement media upon or after being spliced with the unwinding media. The exemplary method may also include providing a tension controller (e.g., 144 in Fig. 2) adapted to regulate media tension based on operational feedback (e.g., 314 in Fig. 6) of at least one of the unwinding media and the replacement media.

An embodiment of dependent claim 46 includes the previously discussed features of independent claim 44 and providing a revolutions sensor (e.g., 110 in Fig. 2) for at least one of the unwinding media and replacement media. *See Application*, page 5, lines 11-13.

An embodiment of dependent claim 47 includes the previously discussed features of independent claim 44 and providing a positional sensor (e.g., 110 in Fig. 2) for a trailing end of the unwinding media. *See Application*, page 5, lines 13-15.

An embodiment of dependent claim 48 includes the previously discussed features of independent claim 44 and providing a positional sensor (e.g., 110 in Fig. 2) for the trailing end of the replacement media. *See Application*, page 5, lines 15-17.

An embodiment of dependent claim 49 includes the previously discussed features of independent claim 44 and providing a tension sensor (e.g., 144 in Fig. 2) for the unwinding media. *See Application*, page 15, lines 21-22.

An embodiment of dependent claim 50 includes the previously discussed features of independent claim 44 and providing the media transition drive (e.g., 148 in Fig. 2) adapted to drive the replacement media. *See Application*, page 8, lines 1-3.

An embodiment of dependent claim 51 includes the previously discussed features of dependent claim 50, wherein providing the tension controller comprises providing a drive tension controller (e.g., 74 in Fig. 2) adapted to provide a holdback force to the replacement media after splicing between the unwinding media and the replacement media. *See Application*, page 9, lines 8-16.

An embodiment of dependent claim 52 includes the previously discussed features of independent claim 1 and transitioning from controlling the motorized drive to adjust speed (e.g., 204 in Fig. 3) of the second reeled media to controlling the motorized drive to adjust tension (e.g., 208 in Fig. 3) of the second reeled media. *See Application*, page 7, line 25-page 8, line 6; and page 9, lines 8-16.

An embodiment of dependent claim 53 includes the previously discussed features of independent claim 1, wherein sensing speed, tracking the unwinding parameter, and positionally tracking the leading end position (e.g., 110 in Fig. 2) comprise obtaining electronic feedback. *See Application*, page 5, lines 11-19.

An embodiment of dependent claim 54 includes the previously discussed features of independent claim 1 and obtaining electronic feedback for controlling the motorized drive to adjust speed, or tension, or a combination thereof. *See Application*, page 6, lines 11-14.

An embodiment of dependent claim 55 includes the previously discussed features of independent claim 15, wherein the operational parameters comprise electronic feedback including tension (e.g., 242 in Fig. 5) and speed (e.g., 148 in Fig. 2) of the first reeled media, or the second reeled media, or a combination thereof. *See Application*, page 4, lines 15-18 and 21-22; Fig. 2; page 14, lines 10-22; Fig. 6.

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

First Ground of Rejection: Claims 31-34, 36, and 42-43

Appellants respectfully urge the Board to review and reverse the Examiner's rejection of claims 31-34, 36 and 42-43 under 35 U.S.C. § 102(b) as anticipated by Mochizuki et al. (U.S. Patent No. 4,875,633, hereinafter "Mochizuki").

Second Ground of Rejection: Claims 1-13, 15-30, 35, 37-41, and 44-45

Appellants respectfully urge the Board to review and reverse the Examiner's rejection of claims 1-13, 15-30, 35, 37-41 and 44-55 under 35 U.S.C. § 103 as obvious over Mochizuki in view of Suzuki et al. (U.S. Patent No. 6,073,876, hereinafter "Suzuki").

7. ARGUMENT

First Ground of Rejection: Claims 31-34, 36, and 42-43

As discussed above, the Examiner rejected claims 31-34, 36 and 42-43 under 35 U.S.C. § 102(b) as anticipated by Mochizuki. Appellants respectfully traverse this rejection.

Legal Precedent

Anticipation under Section 102 can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 U.S.P.Q. 773 (Fed. Cir.

1985). For a prior art reference to anticipate under Section 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). To maintain a proper rejection under Section 102, a single reference must teach each and every limitation of the rejected claim. *Atlas Powder v. E.I. du Pont*, 750 F.2d 1569 (Fed. Cir. 1984). Accordingly, the Appellants need only point to a single element not found in the cited reference to demonstrate that the cited reference fails to anticipate the claimed subject matter. The prior art reference also must show the *identical* invention "*in as complete detail as contained in the ... claim*" to support a *prima facie* case of anticipation. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989) (emphasis added).

Further, the pending claims must be given an interpretation that is reasonable and consistent with the *specification. See In re Prater*, 415 F.2d 1393, 1404-05, 162 U.S.P.Q. 541, 550-51 (C.C.P.A. 1969) (emphasis added); M.P.E.P. §§ 608.01(o) and 2111. Indeed, the specification is "the primary basis for construing the claims." *See Phillips v. AWH Corp.*, No. 03-1269, -1286, at 13-16 (Fed. Cir. July 12, 2005) (*en banc*). One should rely *heavily* on the written description for guidance as to the meaning of the claims. *See Id.*

Interpretation of the claims must also be consistent with the interpretation that *one of ordinary skill in the art* would reach. *See In re Cortright*, 165 F.3d 1353, 1359, 49 U.S.P.Q.2d 1464, 1468 (Fed. Cir. 1999); M.P.E.P. § 2111. "The inquiry into how a person of ordinary skill in the art understands a claim term provides an objective baseline from which to begin claim interpretation." *See Collegenet, Inc. v. ApplyYourself, Inc.*, No. 04-1202, -1222, 1251, at 8-9 (Fed. Cir. August 2, 2005) (quoting *Phillips*, No. 03-1269, -1286, at 16). The Federal Circuit has made clear that derivation of a claim term must be based on "usage in the ordinary and accustomed meaning of the words amongst artisans of ordinary skill in the relevant art." *See Id.*

Mochizuki Fails to Teach Controlling Torque Subsequent to Splicing

Turning to the claims, independent claim 31 recites, *inter alia*, "wherein the machine readable code is adapted to control speed of a motor driving the second reeled media at least prior to splicing and adapted to control torque of the motor driving the second reeled media at least *subsequent to splicing*." (Emphasis added.)

In the Final Office Action, the Examiner specifically stated:

> Claims 31-34, 36 and 42-43 are rejected under 35 U.S.C. 102(b) as being anticipated by Mochizuki et al. The device (and resulting method) of Mochizuki et al relates to a splicing apparatus that includes sensor 43 for sensing the lead end of the material on the new roll, various other sensors for determining the diameter (and thus of the trailing end of the expiring web) of the expiring roll and the roll speeds including rotation sensors for the rolls, to control the acceleration of the new roll to web speed and to control the splice and cutting operations, and a programmed sequencer 70 for inputting data and outputting control operation information. Both rolls are driven and braked according to predetermined data.
>
> With respect to amended claims 31 and 36, Mochizuki explains that both of the clutches may not be in a connection state or a disconnection [state] simultaneously, thus each roll has its own speed and the electromagnetic clutch is controlled so that torque may arise, see column 4, lines 50-65, and column 6, lines 22-45.
>
> . . .
>
> With respect to amended claims 31, 36 and 44, Applicant argues that Mochizuki fails to teach controlling the motor 21 to oppose the rotation of the succeeding paper roll 3a, since the drive belts 12 and 13 are driven at identical speeds, see column 4, line 66-column 5, line 2. Therefore, the drive system of Mochizuki is incapable of opposing rotation of the succeeding paper roll 3a.
>
> As explained above, Applicant is relying on a portion of the specification as recited in see [sic] column 4, line 66-column 5, line 2, Mochizuki explains the driving belts which are driven by the transmission of the rotary driving force of the driving motor 21 have the same circular motion speed. However, [the]

> Mochizuki reference as a whole explains that both of the clutches may not be in a connection state or a disconnection simultaneously, thus each roll has its own speed and the belts are not driven at identical speeds at the beginning, see column 4, lines 50-65, and column 6, lines 22-45.

Final Office Action mailed on September 12, 2005, pages 2 and 4 (emphasis in original).

The Examiner's rejection is flawed for a number of reasons. The cited reference does not teach or suggest machine readable code adapted "to control torque of the motor driving the second reeled media at least *subsequent to splicing*," as recited by independent claim 31. (Emphasis added.) In sharp contrast, Mochizuki teaches a paper splicing device 1 that absolutely fails to control torque of the motor 21 driving the succeeding paper roll 3a subsequent to splicing. Thus, the Mochizuki reference could not possibly disclose *all* the features of independent claim 31.

In an attempt to address the failure of Mochizuki to teach controlling torque *subsequent to splicing*, the Examiner cited an instance where Mochizuki teaches gradually increasing the torque applied to drive belt 12 *prior to splicing*. Final Office Action mailed on September 12, 2005, page 2 (citing Mochizuki col.4, ll. 50-65; and col. 6, ll. 22-45). For context, Mochizuki teaches a pair of drive belts 12 and 13 that drive a preceding paper roll 3b and a succeeding paper roll 3a, respectively. Mochizuki, Fig. 1. An electromagnetic clutch 30 selectively couples the drive belt 12 to the drive belt 13 at various points during loading and splicing operations. Mochizuki, Fig. 2 To facilitate loading of a succeeding paper roll 3a, the electromagnetic clutch 30 disengages drive belt 12 from drive belt 13, so drive belt 12 stops *during loading*. Mochizuki, col. 6, ll. 51-54. To match the speed of the drive belts 12 and 13 *before splicing*, electromagnetic clutch 30 gradually mechanically couples the drive belts 12 and 13, so drive belt 12 accelerates to the same speed as drive belt 13 *before splicing*. Mochizuki, col. 4, l. 67-col. 5, l. 2; col. 6, ll. 14-29; col. 7, ll. 25-44; and Fig. 2. Thus, while the drive system of Mochizuki may gradually increase the torque applied to drive belt 12, the drive belt 12 clearly accelerates to the same speed

as drive belt 13 before splicing. In other words, electromagnetic clutch 30 transmits 100% of the torque available to drive belt 12 before, during, and after a splicing operation. That is, the electromagnetic clutch 30 ceases to regulate torque before a splicing operation begins, so the electromagnetic clutch 30 could not possibly control torque subsequent to splicing. In view of the fact that electromagnetic clutch 30 is fully engaged during and after splicing, the cited portion of Mochizuki clearly does not disclose controlling torque subsequent to splicing.

In fact, the drive system of Mochizuki is absolutely incapable of controlling torque of the motor 21 driving the succeeding paper roll 3a subsequent to splicing. Based on these missing features, Appellants respectfully request that the Board withdraw the rejection of claim 31 and the claims depending therefrom.

Mochizuki Fails to Teach Applying a Force Opposing Rotation

Independent claim 36 recites, *inter alia*, "a media drive disposed adjacent the second reel structure and adapted to drive the replacement media and to *apply a force opposing rotation of the replacement media for a transition from the unwinding media to the replacement media*." (Emphasis added.) In the Final Office Action, the Examiner asserted, without citation, that "[b]oth rolls are driven and braked according to predetermined data." Final Office Action mailed on September 12, 2005, page 2.

Here again, the Examiner's rejection is flawed for a number of reasons. Mochizuki absolutely fails to disclose *a media drive* that is adapted "to apply a force opposing rotation of *the replacement media* for a transition from the unwinding media to the replacement media," as recited by independent claim 36. The electromagnetic brake 37 of Mochizuki is neither a *media drive* nor does it oppose rotation of the succeeding paper roll 3a. For context, Mochizuki teaches an electromagnetic brake 37 coupled to drive belt 13 through drive shaft 35. Mochizuki, col. 4, ll. 58-59; Fig 2. The electromagnetic brake 37 does not apply a force opposing rotation of *the replacement media*. The electromagnetic brake 37 couples to belt 13, which drives the *preceding* paper roll 3b. *See* Mochizuki, Figures 2 and 3. Thus, the Mochizuki reference does

not teach *a media drive* that is adapted "to apply a force opposing rotation of the *replacement media* for a transition from the unwinding media to the replacement media," as recited by independent claim 36.

In an attempt to address the failure of Mochizuki to teach the features recited by independent claim 36, the Examiner asserted that "both of the clutches may not be in a connection state or a disconnection [state] simultaneously, thus each roll has its own speed and the electromagnetic clutch is controlled so that torque may arise, see column 4, lines 50-65, and column 6, lines 22-45." Final Office Action mailed on September 12, 2005, page 2 (emphasis removed). However, the cited portion of Mochizuki does not support the Examiner's conclusion. The cited portion of Mochizuki, which states that "both of the clutches may not be in a connection state or a disconnected state simultaneously," refers to electromagnetic clutches 27 and 28 in Fig. 2. Mochizuki, col. 4, ll. 50-53. This does not mean that drive belts 12 and 13 rotate at different speeds *during a splicing operation.* Electromagnetic clutches 27 and 28 selectively couple shaft 26 to opposing sides of electromagnetic clutch 30 and to the drive belts 12 and 13. Mochizuki, Fig. 2. As a result, when electromagnetic powder clutch 30 is engaged, drive belt 12 is mechanically coupled to drive belt 13 regardless of which electromagnetic clutch 27 and 28 is engaged. Mochizuki, Fig. 2. In other words, shaft 26 simultaneously drives both drive belts 12 and 13 through either electromagnetic clutch 27 or 28 when the electromagnetic clutch 30 engages. That is, when electromagnetic clutch 30 engages, it does not matter which electromagnetic clutch 27 or 28 is engaged. Conversely, when electromagnetic powder clutch 30 disengages, shaft 26 couples to either drive belt 12 or drive belt 13 exclusively, depending on which electromagnetic clutch 27 or 28 is engaged. Mochizuki, Fig. 2. Therefore, drive belts 12 and 13 do not rotate at the same speed merely because electromagnetic clutches 27 and 28 may not be in a connected state or disconnected state simultaneously. When electromagnetic clutch 30 fully engages, drive belts 12 and 13 rotate at the same speed. Mochizuki, col. 7, ll. 35-44. Further, as explained above, electromagnetic clutch 30 fully engages *before* splicing. Therefore, drive belts 12 and 13 are coupled by electromagnetic clutch 30 and rotate at the same speed during splicing.

Moreover, even if, *ad arguendo*, drive belts 12 and 13 rotate at different speeds during splicing, the Examiner has failed to explain how this translates into a force opposing the rotation of the succeeding paper roll 3a. Indeed, the Examiner has not even suggested which drive belt 12 or 13 rotates faster during splicing, let alone a mechanism by which such a speed differential translates into a force opposing rotation of the succeeding paper roll 3a. Thus, the present rejection fails to even assert that Mochizuki teaches *all* the features of claim 36 or the claims that depend therefrom.

In fact, Mochizuki does not disclose "*a media drive* disposed adjacent the second reel structure and adapted to drive the replacement media and to *apply a force opposing rotation of the replacement media for a transition from the unwinding media to the replacement media.*" Thus, Mochizuki does not teach *all* the features of the present claims. For this reason among others, Appellants respectfully request allowance of independent claim 36 and the claims that depend therefrom.

Second Ground of Rejection: Claims 1-13, 15-30, 35, 37-41, and 44-45

The Examiner rejected claims 1-13, 15-30, 35, 37-41 and 44-55 under 35 U.S.C. 103(a) as obvious over Mochizuki in view of Suzuki. Appellants respectfully traverse this rejection.

Legal Precedent

The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d. 1430 (Fed. Cir. 1990). Accordingly, to establish a *prima facie* case, the

Examiner must not only show that the combination includes *all* of the claimed elements, but also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985). The Examiner must provide objective evidence, rather than subjective belief and unknown authority, of the requisite motivation or suggestion to combine or modify the cited references. *In re Lee*, 61 U.S.P.Q.2d. 1430 (Fed. Cir. 2002). Moreover, a statement that the proposed modification would have been "'well within the ordinary skill of the art'" based on individual knowledge of the claimed elements cannot be relied upon to establish a *prima facie* case of obviousness without some *objective reason to combine* the teachings of the references. *Ex parte Levengood*, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993); *In re Kotzab*, 217 F.3d 1365, 1371, 55 U.S.P.Q.2d. 1313, 1318 (Fed. Cir. 2000); *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 U.S.P.Q.2d. 1161 (Fed. Cir. 1999).

During patent examination, the pending claims must be given an interpretation that is reasonable and consistent with the specification. *See In re Prater*, 415 F.2d 1393, 1404-05, 162 U.S.P.Q. 541, 550-51 (C.C.P.A. 1969); *see also* M.P.E.P. §§ 608.01(o) and 2111. Indeed, the specification is "the primary basis for construing the claims." *See Phillips v. AWH Corp.*, No. 03-1269, -1286, at 13-16 (Fed. Cir. July 12, 2005) (citations omitted) (en banc). Interpretation of the claims must also be consistent with the interpretation that those skilled in the art would reach. *See In re Cortright*, 165 F.3d 1353, 1359, 49 U.S.P.Q.2d 1464, 1468 (Fed. Cir. 1999); M.P.E.P. § 2111. "The inquiry into how a person of ordinary skill in the art understands a claim term provides an objective baseline from which to begin claim interpretation." *See Collegenet, Inc. v. ApplyYourself, Inc.*, No. 04-1202, -1222, 1251, at 8-9 (Fed. Cir. August 2, 2005) (quoting *Phillips*).

Claim Features Omitted from Cited References

In the Final Office Action, the Examiner stated:

> Claims 1-13, 15-30, 35, 37-41 and 44-55 [are] rejected under 35 U.S.C. 103(a) as being unpatentable over Mochizuki et al in view of Suzuki et al. While the Mochizuki et al reference does not

> include any tension control specifics[,] it is old and well known in the art to provide tension control to a running web, especially after a splicing operation, and specifically it would have been obvious to control tension in the device of Mochizuki et al. in view of the teaching Suzuki et al. Suzuki et al directly relates to tension control of a web during and after a splice operation and includes all of the claimed features set forth in the application relating to tension control, specifically that the new roll is driven to coincide with the rotational speed of the expiring web and after splicing is braked in a tension controlled manner, see column 9, paragraph beginning on line 53.
>
> With respect to amended claims 1, 15 and 21, Suzuki explains each roll 3,4,5 is driven by any conventional roll driver which controls the speed of the roll and has the automatic tension control 18z.

Final Office Action mailed on September 12, 2005, pages 3 and 4.

Independent Claims 1 and 44

Independent claim 1 recites, *inter alia*, "controlling the *motorized drive* to adjust tension of the second reeled media," and independent claim 44 recites, *inter alia*, "providing a transition drive controller adapted to control *a media transition drive* to accelerate the replacement media to a surface speed of the unwinding media and to generate a torque that opposes unwinding of the replacement media upon or after being spliced with the unwinding media." (Emphasis added.)

The Examiner's rejection is flawed for a number of reasons. The cited references do not teach or suggest, alone or in hypothetical combination, "controlling the *motorized drive* to adjust tension of the second reeled media," as recited by claim 1, or "providing a transition drive controller adapted to control *a media transition drive*," as recited by claim 44. (Emphasis added). As explained above, in reference to the Section 102 rejection, Mochizuki does not teach controlling tension *during or after splicing*, let alone controlling tension with a *drive*. In fact, the Examiner stated that "the Mochizuki et al. reference does not include any tension control specifics." Final Office Action mailed on September 12, 2005, Page 3. Moreover, Suzuki does not obviate this deficiency. Suzuki unmistakably teaches controlling tension in a running paper

web 9 with pneumatic brakes 6, 7 and 8. *See* Suzuki col. 3, ll. 1-6; col. 5, ll. 4-6; and col. 7, ll. 18-25. Clearly, brakes 6, 7, and 8 simply are not drives, as recited in the present claims. Indeed, as discussed in the background section of the present application, pneumatic brakes may introduce undesirable time lags in a splicing operation. *See Application*, page 1, lines 17-18. In view of these deficiencies, the cited references, taken alone or in hypothetical combination, cannot render obvious the current independent claims 1 or 44 or their dependent claims.

Claims 37-41

Claims 37-41 depend from independent claim 36, which recites, *inter alia*, "a *media drive* disposed adjacent the second reel structure and adapted to drive the replacement media and to apply a force opposing rotation of the replacement media for a transition from the unwinding media to the replacement media." (Emphasis added.)

In contrast, as discussed above, neither Suzuki or Mochizuki, taken alone or in combination, teach or suggest "a *media drive* ... adapted to drive the replacement media and to apply a force opposing rotation of the replacement media," as recited by claim 36. (Emphasis added.) In fact, Suzuki teaches brakes 6, 7 and 8 that adjust tension in a running paper web 9. *Supra*. Furthermore, as is also explained above, Mochizuki does not teach or suggest opposing the rotation of the replacement media with a *drive*. Accordingly, the cited references, taken alone or in hypothetical combination, fail to teach or suggest *all* the features of independent claim 36. Therefore, the cited references cannot render obvious dependent claims 37-41. Moreover, the cited references, taken alone or in hypothetical combination, fail to teach or suggest the additional feature recited in each of the respective dependent claims 37-41.

Independent Claims 15 and 21

Independent claim 15 recites, *inter alia*, "means for transitioning from *speed based control* to tension based control of the second reeled media to facilitate transitioning and splicing between the first and second reeled media," and independent claim 21 recites, *inter alia*, "a

transition drive controller adapted to transition a motorized media drive from *speed control* to tension control of the second reeled media." (Emphasis added.)

With regard to 35 U.S.C. §112, paragraph 6, the Federal Circuit has held "that the 'broadest reasonable interpretation' that an examiner may give means-plus-function language is that statutorily mandated in paragraph six." *See* M.P.E.P. § 2181 (quoting *In re Donaldson Co.*, 16 F.3d 1189, 29 U.S.P.Q.2d 1845 (Fed. Cir. 1994) (en banc)). "Accordingly, the PTO may not disregard the structure disclosed in the specification corresponding to such language when rendering a patentability determination." *See id.*

However, the cited references do not teach or suggest, alone or in hypothetical combination, "means for transitioning from *speed based control* to tension based control," as recited by claim 15, or "a transition drive controller adapted to transition a motorized media drive from *speed control* to tension control of the second reeled media," as recited by claim 44. As stated above, in the legal precedent section, the <u>specification</u> is "the primary basis for construing the claims." *See Phillips v. AWH Corp.*, No. 03-1269, -1286, at 13-16 (Fed. Cir. July 12, 2005) (citations omitted) (en banc). Moreover, as stated in the preceding paragraph, with means-plus-function claims, "the PTO may not disregard the structure disclosed in the <u>specification</u>." *See* M.P.E.P. § 2181. (Emphasis added.) Here, the term "speed based control" is clearly used to mean adjusting speed in response to a deviation from a target speed, and the term "tension based control" is clearly used to mean adjusting tension in response to a deviation from a target tension. Specification, page 6 (disclosing tension based control by adjusting tension to match a target tension); and page 8 (disclosing speed based control by accelerating a reeled media to match a target speed.)

The Mochizuki reference fails to teach or suggest such a transition to tension based control. Again, the Examiner stated that "the Mochizuki et al reference does not include any tension control specifics." Final Office Action mailed on September 12, 2005, page 3. Moreover, Suzuki exclusively teaches a <u>tension control device</u>. Suzuki, Abstract; and col. 2, ll.

33-35. The device taught by Suzuki adjusts the brake pressure of brakes 6, 7 and 8 in response to deviations from a targeted tension in the paper web 9, i.e., it controls tension. *Id.* at col. 5, ll. 6-7; col. 7, ll. 18-25; and col. 7, ll. 45-64 (teaching that brake pressure changes in response to tension.) While the speed of paper web 9 may change as a result of tension based control, *Id.* at col. 5, ll. 4-5, this does not mean that Suzuki teaches speed based control. Brake pressure is adjusted in response to a tension differential (i.e., difference between the actual tension and a target tension), not in response to a speed differential. *Id.* at col. 7, ll. 45-60. Indeed, Suzuki does not even disclose a speed sensor with which a speed differential might be determined. In short, the device taught by Suzuki is a tension control device and not a speed control device. *Id.* at Abstract. In view of the fact that Suzuki does not teach speed based control, Suzuki could not possible teach or suggest *transitioning from speed based control* to tension based control. Thus, neither Mochizuki nor Suzuki, taken alone or in hypothetical combination, teach or suggest *all* the features of independent claims 15 or 21 or their dependent claims.

Claim 35

Claim 35 depends from independent claim 31, which recites, *inter alia*, "wherein the machine readable code is adapted to *control speed* of a motor driving the second reeled media at *least prior to splicing* and adapted to *control torque* of the motor driving the second reeled media *at least subsequent to splicing*." (Emphasis added.)

As discussed above, neither Suzuki or Mochizuki, taken alone or in combination, teach or suggest a machine readable code that is "adapted to *control speed* of a motor driving the second reeled media *at least prior to splicing* and adapted to *control torque* of the motor driving the second reeled media *at least subsequent to splicing*," as recited by claim 31. (Emphasis added.) The Mochizuki reference fails to teach or suggest such a transition to tension based control. Again, the Examiner stated that "the Mochizuki et al reference does not include any tension control specifics." Final Office Action mailed on September 12, 2005, page 3. While Suzuki may teach tension based control, this reference clearly does not teach or suggest <u>speed based control</u> of the second reeled media. *Supra*. Thus, Suzuki certainly does not teach a transition

from speed based control to tension based control. Accordingly, the cited references, taken alone or in hypothetical combination, fail to teach or suggest *all* the features of independent claim 31. Therefore, the cited references cannot render obvious dependent claim 35.

For these reasons, among others, Appellants respectfully requests withdrawal of the rejections under 35 U.S.C. § 103.

Appendices

The following appendices are attached below: (8) Claims Appendix, (9) Evidence Appendix, and (10) Related Proceedings Appendix.

CONCLUSION

In view of the above remarks, Appellants respectfully submit that the Examiner has provided no supportable position or evidence that claims 31-34, 36 and 42-43 are anticipated under Section 102 or that claims 1-13, 15-30, 35, 37-41 and 44-55 are obvious under Section 103(a). Accordingly, Appellants respectfully request that the Board find claims 1-13 and 15-55 patentable over the prior art of record, withdraw all outstanding rejections, and allow claims 1-13 and 15-55.

General Authorization for Extensions of Time

In accordance with 37 C.F.R. § 1.136, Appellants hereby provide a general authorization to treat this and any future reply requiring an extension of time as incorporating a request therefor. Furthermore, Appellants authorize the Commissioner to charge the appropriate fee for any extension of time to Deposit Account No. 01-0857, Order No. 03AB059/YOD (ALBR:0134).

Respectfully submitted,

Date: May 1, 2006

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8. CLAIMS APPENDIX

1. A method of operating a media production system, comprising:

sensing speed parameters of first and second reeled media;

tracking an unwinding parameter of the first reeled media;

positionally tracking a leading end position of the second reeled media; and

controlling splicing between the first and second reeled media based at least partially on the speed parameters, the unwinding parameter, and the leading end position;

controlling a motorized drive to adjust speed of the second reeled media; and

controlling the motorized drive to adjust tension of the second reeled media.

2. The method of claim 1, wherein sensing speed parameters comprises identifying surface speeds of the first and second reeled media.

3. The method of claim 1, wherein tracking the unwinding parameter comprises positionally tracking a trailing end position of the first reeled media.

4. The method of claim 1, wherein tracking the unwinding parameter comprises sensing revolutions of unwinding the first reeled media.

5. The method of claim 1, wherein tracking the unwinding further comprises identifying a diameter of the first reeled media.

6. The method of claim 1, wherein positionally tracking the leading end position comprises sensing revolutions of rotating the second reeled media.

7. The method of claim 1, wherein positionally tracking the leading end position comprises sensing a positional marker at the leading end position.

8. The method of claim 1, wherein controlling spicing comprises triggering an adhesion operation prior to a trailing end position of the first reeled media and before the leading end position of the second reeled media.

9. The method of claim 8, wherein triggering the adhesion operation comprises:

contacting the first and second media at a desired fraction of a revolution prior to the leading end position; and

bonding the first and second media at a bond region adjacent the leading end position.

10. The method of claim 9, wherein controlling splicing further comprises triggering a cutting operation to cut the first reeled media after the bond region.

11. The method of claim 1, wherein controlling splicing comprises controlling the motorized drive to adjust the speed and controlling the motorized drive to adjust the tension of the second reeled media.

12. The method of claim 1, wherein controlling the motorized drive to adjust speed comprises accelerating a surface speed of the second reeled media toward a surface speed of the first reeled media; and controlling the motorized drive to adjust tension comprises applying a torque opposing a direction of rotation of the second reeled media.

13. The method of claim 12, wherein accelerating is performed prior to a splice of the first and second reeled media and applying the torque opposing the direction of rotation is performed after the splice.

15. A system of operating a media production system, comprising:

means for sensing operational parameters of first and second reeled media;

means for controlling splicing of the first and second reeled media based on the operational parameters; and

means for transitioning from speed based control to tension based control of the second reeled media to facilitate transitioning and splicing between the first and second reeled media.

16. The system of claim 15, wherein the operational parameters comprise speed feedback of the first and second reeled media.

17. The system of claim 15, wherein the operational parameters comprise media tension feedback.

18. The system of claim 15, wherein the operational parameters comprise media position feedback.

19. The system of claim 18, wherein the media position feedback comprises unwinding condition of the first reeled media and a leading end position of the second reeled media.

20. The system of claim 15, comprising means for independently regulating media tension of the first and second reeled media.

21. A system, comprising:

speed sensors adapted to sense speed parameters of first and second reeled media;

an unwinding sensor adapted to track an unwinding parameter of the first reeled media;

a positional sensor adapted to track a leading end position of the second reeled media;

a transition drive controller adapted to transition a motorized media drive from speed control to tension control of the second reeled media; and

a media splicing controller adapted to control splicing between the first and second reeled media based at least partially on the speed parameters, the unwinding parameter, and the leading end position.

22. The system of claim 21, comprising a media tension sensor adapted to obtain tension feedback from at least one of the first and second reeled media.

23. The system of claim 22, comprising a tension controller adapted to regulate media tension based on the tension feedback.

24. The system of claim 23, wherein the tension controller is adapted to provide a control signal to a static belt tensioning mechanism.

25. The system of claim 23, wherein the tension controller is adapted to provide a control signal to a media drive belt.

26. The system of claim 23, wherein the tension controller is adapted to provide a control signal to a tensioning mechanism for a rotatable media carrier.

27. The system of claim 21, wherein the unwinding parameter comprises a trailing end position of the first reeled media.

28. The system of claim 21, wherein the media splicing controller comprises an adhesion trigger adapted to provide contact between the first and second media prior to a trailing end position of the first reeled media and at a desired fraction of a revolution prior to the leading end position of the second reeled media.

29. The system of claim 25, wherein the adhesion trigger is adapted to provide stable contact between the first and second media leading into a bond region adjacent the leading end position.

30. The system of claim 25, wherein the media splicing controller further comprises a cutting trigger adapted to engage a media cutter to cut the first reeled media after the leading end position.

31. A program for controlling a media production system, comprising:

a tangible machine readable medium; and

machine readable code disposed on machine readable medium and adapted to control splicing between first and second reeled media based at least partially on speed feedback from the first and second reeled media, unwinding feedback from the first reeled media, and positional feedback of a leading end of the second reeled media,

wherein the machine readable code is adapted to control speed of a motor driving the second reeled media at least prior to splicing and adapted to control torque of the motor driving the second reeled media at least subsequent to splicing.

32. The program of claim 31, wherein the speed feedback comprises surface speeds of the first and second reeled media.

33. The program of claim 31, wherein the unwinding feedback comprises a trailing end position of the first reeled media.

34. The program of claim 31, wherein the machine readable code is adapted to trigger adhesion between the first and second reeled media adjacent the leading end of the second reeled media and to trigger subsequent cutting of the first reeled media.

35. The program of claim 31, wherein the machine readable code is adapted to regulate tension of at least one of the first and second reeled media based at least partially on tension feedback.

36. A system, comprising:

a first reel structure adapted to support an unwinding media;

a second reel structure adapted to support a replacement media;

a media carrier disposed adjacent the first reel structure and adapted to transport the unwinding media;

a media drive disposed adjacent the second reel structure and adapted to drive the replacement media and to apply a force opposing rotation of the replacement media for a transition from the unwinding media to the replacement media; and

a splicing controller adapted to control splicing between the unwinding media and the replacement media based at least partially on speed feedback for the unwinding media and the replacement media, unwinding feedback for the unwinding media, and positional feedback of a leading end of the replacement media.

37. The system of claim 36, comprising a tension controller adapted to regulate media tension based on operational feedback of the unwinding media.

38. The system of claim 37, wherein the media carrier comprises a static belt tensioning mechanism adapted to contact the unwinding media, wherein the tension controller is adapted to provide a control signal for adjusting the static belt tensioning mechanism.

39. The system of claim 37, wherein the media carrier comprises a plurality of rotatable media carriers offset from one another, at least one of the plurality of rotatable media carriers having a positional adjustment for tension in the unwinding media, wherein the tension controller is adapted to provide a control signal for the positional adjustment.

40. The system of claim 37, wherein the tension controller is adapted to provide a control signal to the media drive.

41. The system of claim 40, wherein the tension controller is adapted to engage the media drive to provide a hold back torque after splicing between the unwinding media and the replacement media.

42. The system of claim 36, wherein the splicing controller comprises an adhesion trigger adapted to provide a control signal to a media contacting device for contacting the unwinding media and the replacement media leading into a bond region adjacent the leading end.

43. The system of claim 36, wherein the splicing controller comprises a cutting trigger adapted to cut the unwinding media after bonding with the replacement media adjacent the leading end.

44. A method for reeled media production, comprising:

providing a splicing controller adapted to control splicing between an unwinding media and a replacement media based at least partially on speed feedback for the unwinding media and the replacement media, unwinding feedback for the unwinding media, and positional feedback of a leading end of the replacement media;

providing a transition drive controller adapted to control a media transition drive to accelerate the replacement media to a surface speed of the unwinding media and to generate a torque that opposes unwinding of the replacement media upon or after being spliced with the unwinding media; and

providing a tension controller adapted to regulate media tension based on operational feedback of at least one of the unwinding media and the replacement media.

45. The method of claim 44, comprising providing a speed sensor for at least one of the unwinding media and the replacement media.

46. The method of claim 44, comprising providing a revolutions sensor for at least one of the unwinding media and replacement media.

47. The method of claim 44, comprising providing a positional sensor for a trailing end of the unwinding media.

48. The method of claim 44, comprising providing a positional sensor for the trailing end of the replacement media.

49. The method claim 44, comprising providing a tension sensor for the unwinding media.

50. The method of claim 44, comprising providing the media transition drive adapted to drive the replacement media.

51. The method of claim 50, wherein providing the tension controller comprises providing a drive tension controller adapted to provide a holdback force to the replacement media after splicing between the unwinding media and the replacement media.

52. The method of claim 1, comprising transitioning from controlling the motorized drive to adjust speed of the second reeled media to controlling the motorized drive to adjust tension of the second reeled media.

53. The method of claim 1, wherein sensing speed, tracking the unwinding parameter, and positionally tracking the leading end position comprise obtaining electronic feedback.

54. The method of claim 1, comprising obtaining electronic feedback for controlling the motorized drive to adjust speed, or tension, or a combination thereof.

55. The system of claim 15, wherein the operational parameters comprise electronic feedback including tension and speed of the first reeled media, or the second reeled media, or a combination thereof.

9. EVIDENCE APPENDIX

None

10. RELATED PROCEEDING APPENDIX

None